The NASA Balloon Program Status

Balloon Roadmap Workshop
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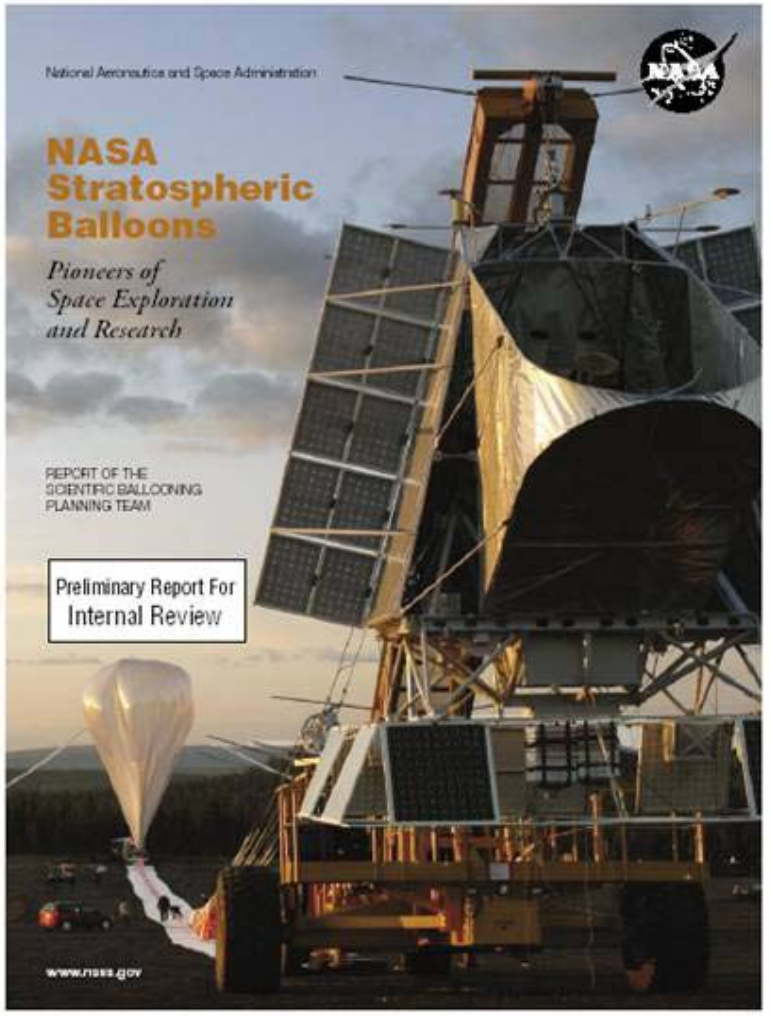
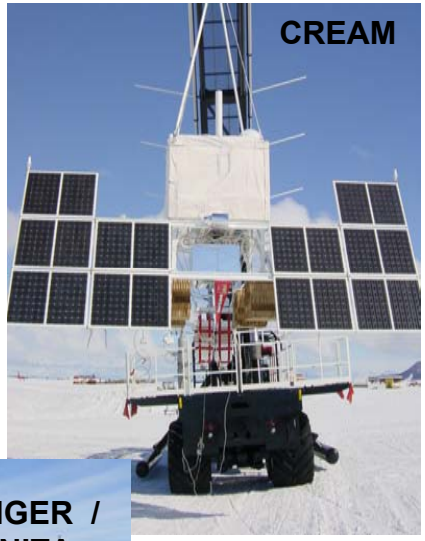
Balloon Roadmap Report

- The Roadmap team, chaired by Martin Israel, Wash U., worked very hard to produce an excellent report, and BPO looks forward to its update.
- Irrespective of resources available, the Roadmap report has served as the basis for long term plans in the Balloon Program (HQs/Wallops Leadership/BPO).
  - The Program, in partnership with NSF, has made progress toward implementing the Roadmap's highest priorities.
  - Budgets submitted by Wallops have for past three years supported these priorities.
  - The Program will continue to advocate for and implement the Roadmap's highest priorities.



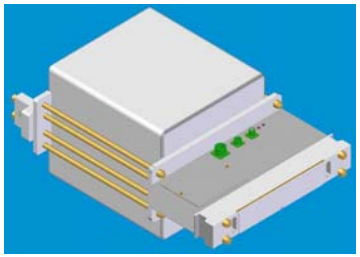
Mission of the NASA Balloon Program

- The NASA Balloon Program provides low-cost, quick response, near space access to NASA's science Community for Heavy payloads conducting Cutting Edge Science Investigations
  - Observatory-class Payloads With Advanced Technologies and Large Aperture/Mass
- Serve as a technology development platform
  - Instrument/Subsystem development for NASA Spacecraft Missions
- Provide hands-on training of Young Scientists and Engineers

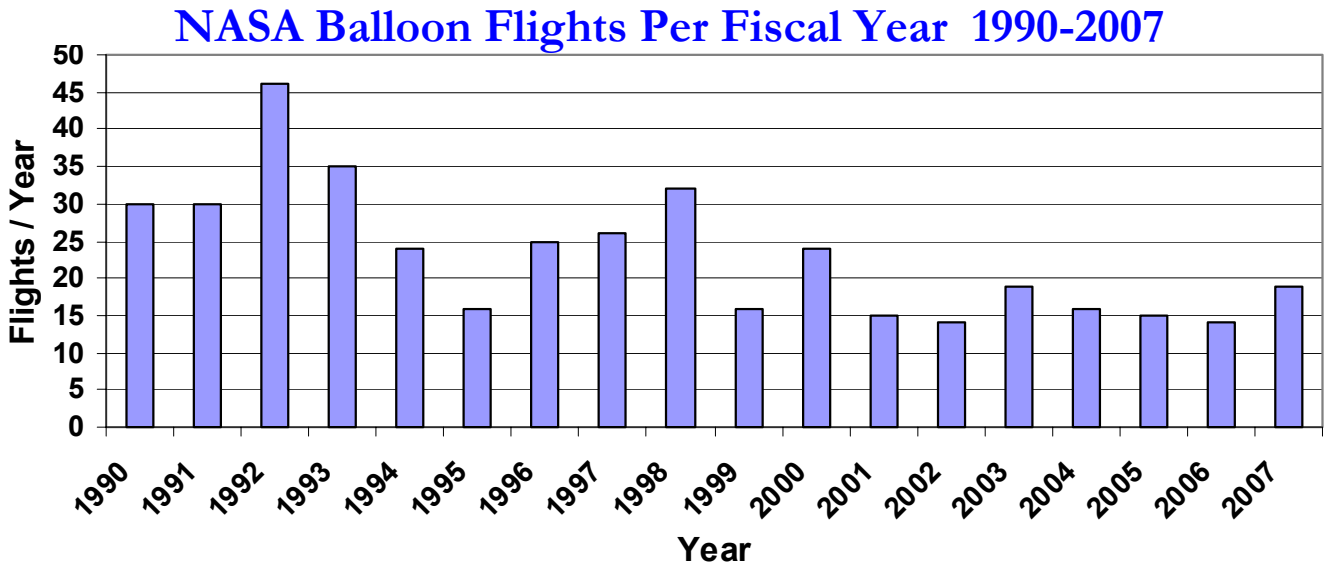


Balloon Program Focus

- **Flight Program:** Balloon Program continues to emphasize as the highest priority the science return from conventional and Long Duration Balloon (LDB) missions.
- LDBs: (2 campaigns annually)
  - Annual campaign to Antarctica
  - Alternating campaigns to Sweden (northern polar) and Australia (midlatitude).
- Conventional (3 campaigns annually)
  - Spring Ft. Sumner
  - Summer Palestine
  - Fall Ft. Sumner
- **Engineering:**
  - Continue a sustaining engineering program to support current and future needs of the flight program.
- **ULDB:** Continued development and demonstration of the super-pressure balloon (110 kFt – 125 kFt). Recent ULDB 27 meter scaled model tests represent major step toward a successful super pressure flight balloon.
- **Technology:** Materials research; Balloon Quality; next generation technologies thru IRAD, SBIR, etc.
- **Training:** BPO will continue to support hands on training of next generation thru student launch initiatives.



BALLOON PROGRAM FLIGHT RATE



90s: Avg 30 Flts/yr

00s: Avg 17 Flts/yr

- **Flight Program:** BPO continues to work to stabilize flight rate at minimum of 20 flt/yrs and grow back to 25-30 flt/yr over next five years.

- **Mission Model:**
- Current: (2 foreign/ 3 domestic campaigns) 16 conv. flights, 2-4 LDB flts
- Future: (3 foreign/ 3 domestic campaigns) 19 -21 conv. flights, 6-9 LDB flts

- Expect SMD to support more flights in the out years and to request flights for smaller missions, and multiple payloads on single flights.

Future of Antarctica Campaign

- **NASA/NSF to support 3 Launches / Year**
  - Conducted 3 flights in FY07. Currently provisional based on facility accommodation & NSF concurrence
  - BPO budgeting 3rd Payload Building in FY2009 with operational availability planned for November 2009
- **Recovery Assets**
  - Basseler completed 2nd season of use in Antarctica
    - ► Increased payload capacity & larger doors for accommodating equipment
    - ► Continue to plan for Twin Otter recovery as Basseler isn't guaranteed for every recovery

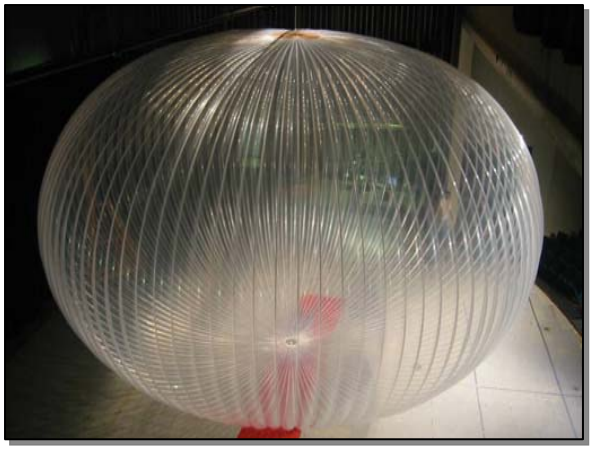
Direction for ULDB Development

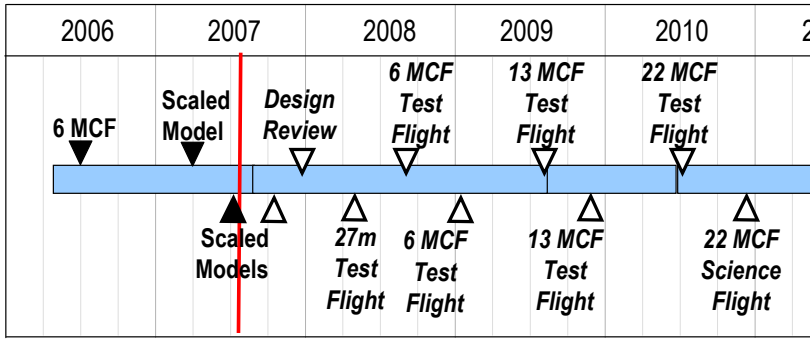
Super Pressure Balloon Vehicle

A series of small scaled model tests will be completed during remainder of 2007.

Small scled model flights will be conducted in 2008, stepping toward a small 6MCF super-pressure balloon flight test during the Australia conventional campaign in Fall 2008.

Upon meeting initial requirement of 1000 kg of science to 110kFT, the program will work toward meeting requirements (125 KFT) to enable the Gamma Ray/Hard X-Ray community long duration mid-latitude flights at a constant altitude.





Capability to SMD:

22 MCF (1000 Kg to 110K FT) FY11

~30 MCF (1000 Kg to 125K FT) FY13

Future Balloon Program Capabilities